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## **Search Notes**

**LITIGATION-6578211**

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June 17, 2003

Combination co-sleeper and changing table

**APPL-NO:** 838041 (09)

**FILED-DATE:** April 20, 2001

**GRANTED-DATE:** June 17, 2003

**CORE TERMS:** strap, rail, attachment, horizontal, securing, variant, bed, adjusting, enclosure, parental ...

**ENGLISH-ABST:**

A co-sleeper convertibly adapted for use as a changing table is described. The invention includes a collapsible rigid frame designed to support an enclosure at a predetermined height. The enclosure has padded walls and is sized and shaped to fit over the rigid frame. The back, first and second side walls of the enclosure are of a first height above a floor of the enclosure while the front wall is of a lower height. The floor of the enclosure is designed to be slightly lower than the top surface of a parental bed. A mattress pad is sized and shaped to fit within the enclosure and is segmented to use as a containing cover for the co-sleeper when the frame is collapsed. A strapping member is provided to hold the co-sleeper to the parental bed. A number of variations of this strapping member are provided. Several styles of support members for the enclosure are provided. These include support bars that attach to the rigid frame, a series of hangers that support horizontal bars while hanging from top rails of the frame, and rigid panels and support rods fitted into pockets on the underside of the enclosure. Variants on the invention also include mesh panels for lower portions of the enclosure walls and rigid panels for insertion into pockets in the enclosure walls designed to prevent the formation of unwanted folds in the enclosure walls that could trap a child. The co-sleeper is height adjustable for variations in parental bed height.

**SUMMARY:**

**FIELD OF INVENTION**

The instant invention relates to the field of convertible units for use with babies and very

young children; in particular to units which may be easily converted to a changing table or child's bed-side sleeping enclosure, hereinafter referred to for convenience as a "co-sleeper", that attaches securely to the parents' bed.

#### BACKGROUND OF THE INVENTION

Furniture and fixtures for use by babies and small children often presents a problem for parents with limited living space. For this reason it is desirable that such furniture serve more than one purpose. A bedside co-sleeper is very useful for an infant or very young child as it prevents a parent from having to get out of bed to deal with a child requiring minor attention or comforting. If the co-sleeper can then be put to other uses, the parents will save both space and the cost of other furniture. Various examples of such multi-purpose children's furniture have been patented and sold.

In U.S. Pat. No. 5,349,709, issued to Cheng teaches a folding combination playpen and baby bed having an elevated floorboard. U.S. Pat. No. 5,339, 470, issued to Shamie discloses a combination foldable playpen and dressing/changing table. U.S. Pat. No. 5,553,336 issued to Mariol adds an upper level to a playpen to provide a bassinet. The short legs of the upper level are inserted into openings in the top of the vertical supports of the playpen. U.S. Pat. No. 2,632,186, issued to Berk et al. discloses a portable combination crib and playpen. U.S. Pat. No. 2,691, 176 issued to Saldana teaches a unit designed for home and travel that may be used as a support for a playpen, bassinet or baby chair.

Beside cribs that attached to the parents' bed were known at the turn of the century (U.S. Pat. Nos. 5,548,005; 620,069; 1,138,451; 1,283,169; 1,267, 244) but fell out of favor for many years. Recently there has been a resurgence in the practice of having babies adjacent the parents' bed. Such bed-side devices are taught in U.S. Pat. No. 5,172,435 to Griffin et al.; U.S. Pat. No. 5,148,561 to Tharalson et al; and U.S. Pat. No. 5,293, 655 to Van Winkle et al.

It is an objective of the present invention to provide a bedside co- sleeper that can be adapted for use as a changing table. It is a further objective of the invention to provide a stand-alone unit that is inexpensive, compact and portable. It is still a further objective of the present invention that the unit be simple to erect and collapsible for transport and storage. Finally, it is an objective of the invention that the co-sleeper design consider and address all possible safety considerations related to its use. Other features and advantages of the invention will be seen from the following description and drawings. The present invention addresses many of the deficiencies of prior art convertible sleeping unit inventions and satisfies all of the objectives described above.

#### SUMMARY OF THE INVENTION

A combination co-sleeper and changing table providing the desired features may be constructed from the following components. A rigid frame is provided. The frame provides means for attaching a support platform at a first predetermined height. The first predetermined height is less than a height of a top surface of a mattress of a parental bed. An enclosure is provided. The enclosure has an open top, a surrounding wall and a floor, the floor has an upper surface and a lower surface. The enclosure is sized and shaped to fit removably over the rigid frame with the lower surface of the floor located upon the support platform. A mattress pad is provided. The mattress pad is sized and shaped to fit slidably within the enclosure. Means are provided for removably attaching the rigid frame to a side of the parental bed.

In a variant of the invention, the rigid frame includes a front side element, a back side element, a first side element and a second side element. The rigid frame is formed at a top by a rear upper horizontal rail and first and second upper side parallel horizontal rails and two upper front corner members and two upper rear corner members in cooperation with the rails. The rigid frame is formed adjacent a floor by front and rear lower parallel horizontal

rails and first side and second side lower parallel horizontal rails and four lower corner leg members in cooperation with the rails. A pair of front vertical rails and a pair of rear vertical rails are in further cooperation with the two upper front corner members and the two upper rear corner members and the four lower corner leg members.

A front upper horizontal rail is in cooperation with the front vertical rails. The front upper horizontal rail has a first end and a second end. The rear upper horizontal rail and first and second upper side parallel horizontal rails are located at a second predetermined height and the front upper horizontal rail is located at a third, lower predetermined height. The third predetermined height is greater than the first predetermined height and the second predetermined height is greater than the third predetermined height.

In a further variant, the support platform includes first and second intermediate side parallel horizontal rails and first and second horizontal support rails. The first and second intermediate side parallel horizontal rails have first and second ends, a mid point and are removably connected at the first and second ends to the front and rear vertical rails of the first and second side elements, respectively. The first and second horizontal support rails have first and second ends, a mid point and are removably connected at the first and second ends to the first and second intermediate side parallel horizontal rails.

In still a further variant, the support platform includes first, second, third and fourth support hangers. Each of the support hangers has a first end, a second end, an inner side and an outer side. Each of the hangers has a curved hooking portion located at the first end. The hooking portion is sized and shaped to fit frictionally over the rigid frame and one of the first and second upper side horizontal rails. Each of the support hangers further includes at least two circular orifices. The orifices extend from the inner side to the outer side of the hangers. The hangers also include at least two spring button housings. The housings are located on the outer sides of the support hangers adjacent the orifices. Each of the spring button housings includes a finger opening.

Two support rods are provided. Each of the rods has a first end and a second end and is sized and shaped to extend between one of the first and second support hangers and one of the third and fourth support hangers when the support hangers are located on one of the first and second upper side horizontal rails. Each of the support rods has a spring button mounted at the first end and the second end. The spring button is sized and shaped to engage the spring button housing. When the first and second ends of the support rods are introduced into the orifices of the support hangers, and the support hangers are located on one of the first and second upper side horizontal rails, the spring buttons will removably engage the spring button housings of the hangers, thereby providing a support platform for the enclosure.

In yet another variant of the invention, the enclosure further includes at least one tie down strap. The strap is fixedly attached to a lower portion of the enclosure and serving to secure the enclosure to the rigid frame so as to prevent the enclosure from rocking on the support hangers.

In still another variant, the support platform includes a series of rigid floor panels. The floor panels are sized and shaped to fit within dimensions of the floor of the enclosure. A series of panel pockets is provided. The panel pockets have an upper surface and a lower surface and are fixedly attached at their upper surfaces to the lower surface of the enclosure. The panel pockets are sized and shaped to removably enclose the rigid floor panels.

A series of support bars are provided. The bars are sized and shaped to fit within dimensions of the floor of the enclosure. A series of bar pockets are provided. The bar pockets have an upper surface and a lower surface and are fixedly attached at their upper surfaces to the lower surface of the panel pockets. The bar pockets are sized and shaped to removably

enclose the support bars. When the rigid floor panels are inserted into the panel pockets, the support bars are inserted into the bar pockets and the enclosure is installed on the rigid frame, the enclosure will include a support platform maintained at the first predetermined height.

In still a further variant of the invention, means are provided for pivotally mounting the front upper horizontal rail to the front vertical rails. Means are provided for pivotally mounting the rear upper horizontal rail to the upper rear corner members. Frame locking devices are pivotally mounted at center points of the front and rear upper horizontal rails. The frame locking devices permit the front and rear upper horizontal rails to pivot downwardly from an open top of the frame.

Means are provided for pivotally mounting the first and second upper side horizontal rails to the upper front and rear corner members. Frame locking devices are pivotally mounted at center points of the first and second upper side horizontal rails. The frame locking devices permit each of the rails to pivot downwardly from the open top of the frame.

Means are provided for pivotally mounting the first and second lower side horizontal rails to the lower front and rear corner leg members. Frame locking devices are pivotally mounted at center points of the first and second side lower horizontal rails. The frame locking devices permit each of the rails to pivot upwardly.

Means are provided for pivotally mounting the front and rear lower horizontal rails to the lower front and rear corner members, respectively. Frame locking devices are pivotally mounted at center points of the front and rear lower horizontal rails. The frame locking devices permit each of the rails to pivot upwardly. The frame may be quickly folded into a compact package for transport and storage by releasing the frame locking devices and depressing the upper horizontal rails downwardly while pulling upwardly on the lower horizontal rails, thereby causing the upper horizontal rails to bend downwardly and the lower horizontal rails to bend upwardly and the vertical rails to move inwardly.

In another variant, the means for removably connecting the first and second intermediate side parallel horizontal rails to the front and rear vertical rails of the first and second side elements and the first and second horizontal support rails to the first and second intermediate side parallel horizontal rails includes a plurality of coupling units. The coupling units are mounted to each of the first and second ends of the intermediate side parallel horizontal rails, the first and second horizontal support rails and front upper horizontal rail.

The coupling units include a T-shaped protrusion orthogonal to the rails and extending from a lower end of the coupling unit to an upper end of the coupling unit and terminating in a stop. A resilient securing tab is located on the coupling unit below the T-shaped protrusion. The securing tab includes a locking projection spaced downwardly from a lower end of the T-shaped protrusion and extending outwardly from the securing tab. The locking projection has a flattened upper surface orthogonal to the securing tab.

A series of receiving units are provided. The receiving units are mounted to each of the front and rear vertical rails and the intermediate side parallel horizontal rails. The receiving units have a mating T-shaped slot extending from an upper end of the receiving unit to a lower end of the receiving unit. The slot terminates in a closed end. The closed end has a flattened lower surface. The receiving units are sized shaped and located to removably secure the coupling units with the locking projection removably engaging the flattened lower surface of the closed end of the mating T-shaped slot when the T-shaped protrusion of the coupling unit is seated in the T-shaped slot of the receiving unit.

When the coupling units are removably attached to the receiving units, the first and second ends of the intermediate side parallel horizontal rails and the front upper horizontal rail will

be removably attached to the front and rear vertical rails and the first and second horizontal support rails will be removably attached to the intermediate side parallel horizontal rails.

In yet another variant of the invention, the enclosure further includes a back wall, a front wall and first and second side walls. The back wall, first and second side walls extend from the floor to at least a height of the rear upper horizontal rail and first and second upper side parallel horizontal rails. The front wall extends from the floor to at least a height of the front upper horizontal rail.

Each of the walls has a padded inner layer. The inner layer is located between the front side element, back side element, first side element and second side element. Each of the walls has an outer layer. The outer layer extends outwardly from the rigid frame. The padded inner layers and the outer layers are joined along upper edges and outer corners to form a pocket enclosing the front and rear upper horizontal rail and first and second upper side parallel horizontal rails and upper portions of the front and rear vertical rails. At least one tie down is provided. The tie down is fixedly attached at a lower corner of the enclosure for removably securing the enclosure to the rigid frame.

In yet a further variant, the enclosure further includes a back wall, a front wall and first and second side walls. The back wall, first and second side walls extend from the floor to at least the height of the rear upper horizontal rail and first and second upper side parallel horizontal rails. The front wall extends from the floor to at least the height of the front upper horizontal rail. Each of the walls has a padded inner layer. The inner layer has an inner surface and an outer surface and is located between the front side element, back side element, first side element and second side element.

Each of the walls has an outer layer. The outer layer has an inner surface and an outer surface and extending outwardly from the rigid frame. The padded inner layers and the outer layers are joined along upper edges forming a series of exterior flaps extending downwardly from the front and rear upper horizontal rails and first and second upper side parallel horizontal rails. Means are provided for removably attaching the outer surfaces of the padded inner layers to the inner surfaces of the outer layers to secure the enclosure to the rigid frame.

In still a further variant of the invention, the enclosure further includes a series of rigid panels. The panels are sized and shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure. A series of pockets is provided. The pockets are located on the outer surface of the padded inner layers of the walls and are sized and shaped to removably enclose the rigid panels. A series of openings in the outer layers of the walls is provided for accessing the pockets. When the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

In yet a further variant, the enclosure further includes a series of rigid panels. The panels are sized and shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure. A series of pockets is provided. The pockets are located on the outer surface of the padded inner layers of the walls and are sized and shaped to removably enclose the rigid panels. When the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

In still another variant of the invention, the enclosure further includes a series of mesh panels. The mesh panels are located along lower portions of the padded inner layers of the walls. The mesh panels will provide additional breathing capability for an occupant of the enclosure that becomes trapped against one of the walls.

In yet another variant, the enclosure further includes a series of mesh panels. The mesh panels are located along lower portions of the padded inner layers of the walls. The mesh panels will provide additional breathing capability for an occupant of the enclosure that becomes trapped against one of the walls.

In yet a further variant, the means for removably attaching the rigid frame to a side of the parental bed includes a strap member having a first end and a second end. A resistance plate member is provided. The plate member has at least two slots vertically aligned and centrally located. The strap member is attached at the slots such that the first end and the second end are equidistant from the plate member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to either of the front and rear vertical rails of the rigid frame.

Attachment cooperation means are located at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means. Adjusting means are provided for adjusting a length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under a mattress and above a surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In still a further variant of the invention, the mattress pad has a top surface and a bottom surface and is covered with a washable fabric and padded on its top surface.

In another variant, the mattress pad is segmented into at least two segments closely aligned and is capable of being folded. The mattress pad serves as an enclosure for the co-sleeper when folded for transport and storage.

In still another variant, the mattress pad further includes at least one pair of reversibly separable attachment means and the enclosure comprises a series of openings sized shaped and located to permit the attachment means to secure the mattress pad to the support platform.

In a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion has an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include a connecting frame. The connecting frame is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails. The connecting frame includes a pair of locking holes. A pair of spring-loaded buttons are mounted within the horizontal rails. The buttons are sized, shaped and located to engage the locking holes in the connecting frame when the first and second portions of the rails are collinear. Means are provided for pushing both buttons inwardly so as to clear the locking holes in the connecting frame simultaneously, thereby permitting the horizontal rails to be pivoted.

In still a further variant of the invention, means are provided for locking the spring-loaded buttons within the horizontal rails so as to clear the locking holes in the connecting frame after pushing the buttons inwardly when the first and second portions of the rails are collinear, thereby permitting easy folding of the rigid frame. Means are provided for unlocking the spring-loaded buttons upon folding of the rigid frame, thereby permitting the buttons to lock into the connecting frame when the rigid frame is unfolded.

In yet a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include an outer connecting housing, the connecting housing is formed of rigid material and

is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails. An inner spring housing is provided. The spring housing is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails such that the pivotal mountings are collinear with the mountings of the outer connecting housing.

The inner spring housing is located within the outer connecting housing and is sized, shaped and located to fit frictionally about the inboard ends of each of the first and second portions of the rails and is capable of expanding within the outer connecting housing to permit pivoting of the inboard ends when the rigid frame is folded, thereby providing a means of locking the inboard ends in collinear alignment when the rigid frame is unfolded.

In still a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include a spring housing. The spring housing is pivotally mounted on a pair of mounting pins to the inboard ends of each of the first and second portions of the horizontal rails. The spring housing includes first and second pairs of accurate alignment slots and first and second pairs of positioning detents.

First and second alignment pins are provided. The pins are mounted parallel to the mounting pins and spaced outwardly from the inboard ends of the first and second portions of the horizontal rails. The alignment pins are sized, shaped and located to fit slidably within the accurate alignment slots. Each of the pairs of positioning detents is spaced apart by a distance slightly greater than a diameter of one of the horizontal rails. When the first and second portions of the horizontal rails are collinear, the rails will be within the spring housing and when the rails are pivoted with respect to one another to fold the rigid frame, the detents will be urged against the rails by the spring resistance of the housing, causing the housing to spread apart. This resistance serves to maintain the collinear alignment of the rails when the rigid frame is erected.

In a yet another variant of the invention, height adjusting extensions cooperate with each of the four lower corner leg members.

In another variant, the means for removably attaching the rigid frame to a side of the parental bed includes a strap member that has a first end and a second end. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are provided. The means are located at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means. Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when connected to one of the strap attachment means and extended over a top surface of the mattress, down a back side of the mattress and underneath the mattress and connected to the other strap attachment means and the adjusting means is tightened to prevent movement of the co-sleeper with respect to the parental bed.

In still another variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

In yet another variant, the securing strap attachment means are connected to either of the front and rear vertical rails.

In yet a further variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes a strap member having a first end and a second end. A securing strap attachment means is provided. The securing strap attachment means is located at the first end of the strap member. An attachment cooperation means is located at



the second end of the strap member for reversible connection to the securing strap attachment means. Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the securing strap attachment means.

The strap member is properly positioned when extended over the top surface of the mattress, down the back side of the mattress and underneath the mattress, terminating behind the back side element with the securing strap attachment means connected to the attachment cooperation means and the adjusting means is tightened to prevent movement of the co-sleeper with respect to the parental bed.

In still a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A resistance plate member is provided. The resistance plate member is located at the leg end of the Y-shaped strap member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first and second arm ends of the Y-shaped strap member for reversible connection to the pair of securing strap attachment means.

Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In yet a further variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In still another variant of the invention, the securing strap attachment means are connected to either of the front and rear vertical rails.

In still a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A resistance plate member is provided. The resistance plate member is located at the leg end of the Y-shaped strap member. A securing strap attachment means is provided. The attachment means is located at the first arm end of the Y-shaped strap member. An attachment cooperation means is located at the second arm end of the Y-shaped strap member for reversible connection to the securing strap attachment means.

Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper with the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In yet another variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes a strap member having a first end and a second end. A hook member is slidably mounted to the strap member such that the first end and the second end are equidistant from the hook member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment

means.

Adjusting means are provided for adjusting a length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and extended downwardly to a bed frame and held in place by the hook member attaching to the bed frame at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In yet a further variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In still another variant the securing strap attachment means are connected to either of the front and rear vertical rails. In another variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A hook member is provided. The hook member located at the leg end of the Y-shaped strap member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first and second arm ends of the Y-shaped strap member for reversible connection to the pair of securing strap attachment means.

Adjusting means are provided for adjusting a length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and extended downwardly to the bed frame and held in place by the hook member attaching to the bed frame at the side of the parental bed opposite placement of the co-sleeper and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In still another variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In yet another variant, the securing strap attachment means are connected to either of the front and rear vertical rails.

In a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A hook member is provided. The hook member is located at the leg end of the Y-shaped strap member. A securing strap attachment means is provided. The attachment means is located at the first arm end of the Y-shaped strap member. An attachment cooperation means is located at the second arm end of the Y-shaped strap member for reversible connection to the securing strap attachment means.

Adjusting means are provided for adjusting a length of the strap member and tightening it after connecting the attachment cooperation means to the securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and extended downwardly to the bed frame and held in place by the hook member attaching to the bed frame at the side of the parental bed opposite placement of the co-sleeper with the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In yet a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes first and second strap members. Each of the strap members has a first end and a second end. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first ends of each of the first and second strap

members for reversible connection to the pair of securing strap attachment means. First and second resistance plate members are provided. Each of the resistance plate members is attached to the second end of one of the first and second strap members.

Adjusting means are provided for adjusting a length of the first and second strap members and tightening them after connecting the attachment cooperation means to the pair of securing strap attachment means. The first and second strap members are properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the first and second resistance plate members located vertically at a side of the parental bed opposite placement of the co- sleeper and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In still a further variant of the invention, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In yet a further variant, the securing strap attachment means are connected to either of the front and rear vertical rails.

In still another variant, the means for removably attaching the rigid frame to the side of the parental bed includes first and second strap members. Each of the strap members has a first end and a second end. A securing strap attachment means is located at the first end of the first strap member. An attachment cooperation means is located at the first end of the second strap member for reversible connection to the securing strap attachment means. First and second resistance plate members are provided. Each of the resistance plate members is attached to the second end of one of the first and second strap members.

Adjusting means are provided for adjusting a length of either of the first and second strap members and tightening it after connecting the attachment cooperation means to the securing strap attachment means. The first and second strap members are properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the first and second resistance plate members located vertically at the side of the parental bed opposite placement of the co- sleeper with the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co- sleeper is held fast to the parental bed.

In yet another variant, the means for removably attaching the rigid frame to the side of the parental bed includes first and second strap members. Each of the strap members has a first end and a second end. A pair of securing strap attachment means is provided. The securing strap attachment means is connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first ends of each of the first and second strap members for reversible connection to the pair of securing strap attachment means. First and second hook members are provided. Each of the hook members is attached to the second end of one of the first and second strap members.

Adjusting means are provided for adjusting a length of the first and second strap members and tightening them after connecting the attachment cooperation means to the pair of securing strap attachment means. The first and second strap members are properly positioned when located under the mattress and above the surface on which the mattress rests and extended downwardly to a bed frame and held in place by the first and second hook members attaching to the bed frame at the side of the parental bed opposite placement of the co- sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In yet a further variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In still a further variant, the securing strap attachment means are connected to either of the front and rear vertical rails.

In still another variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes first and second strap members. Each of the strap members has a first end and a second end. A securing strap attachment means is located at the first end of the first strap member. An attachment cooperation means is located at the first end of the second strap member for reversible connection to the securing strap attachment means. First and second hook members are provided. Each of the hook members is attached to the second end of one of the first and second strap members.

Adjusting means are provided for adjusting a length of either of the first and second strap members and tightening them after connecting the attachment cooperation means to the securing strap attachment means. The first and second strap members are properly positioned when located under the mattress and above the surface on which the mattress rests and extended downwardly to a bed frame and held in place by the first and second hook members attaching to the bed frame at the side of the parental bed opposite placement of the co-sleeper with the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In a further variant, the adjusting means is disposed at a point on the strap member adjacent the resistance plate member. In still a further variant, the adjusting means is disposed at the leg end of the Y-shaped strap member adjacent the resistance plate member. In yet a further variant of the invention, the adjusting means is disposed at a point on the strap member adjacent the hook member. In another variant, the adjusting means is disposed at the leg end of the Y-shaped strap member adjacent the hook member. In still another variant, the adjusting means are disposed at points on the first and second strap member adjacent the first and second resistance plate members. In a final variant of the invention, the adjusting means are disposed at points on the first and second strap member adjacent the first and second hook members.

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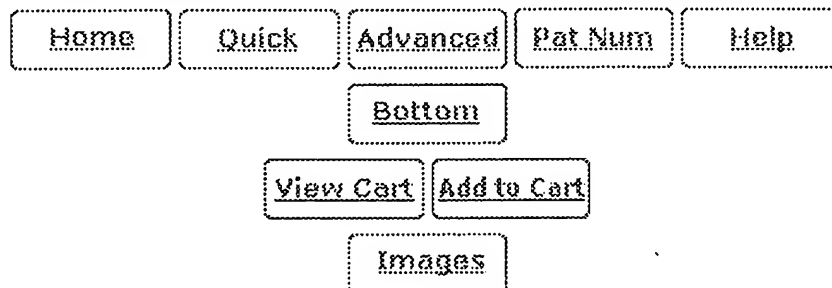
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( 1 of 1 )

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**United States Patent**  
**Tharalson , et al.**

**6,578,211**  
**June 17, 2003**

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**Combination co-sleeper and changing table**

**Abstract**

A co-sleeper convertibly adapted for use as a changing table is described. The invention includes a collapsible rigid frame designed to support an enclosure at a predetermined height. The enclosure has padded walls and is sized and shaped to fit over the rigid frame. The back, first and second side walls of the enclosure are of a first height above a floor of the enclosure while the front wall is of a lower height. The floor of the enclosure is designed to be slightly lower than the top surface of a parental bed. A mattress pad is sized and shaped to fit within the enclosure and is segmented to use as a containing cover for the co-sleeper when the frame is collapsed. A strapping member is provided to hold the co-sleeper to the parental bed. A number of variations of this strapping member are provided. Several styles of support members for the enclosure are provided. These include support bars that attach to the rigid frame, a series of hangers that support horizontal bars while hanging from top rails of the frame, and rigid panels and support rods fitted into pockets on the underside of the enclosure. Variants on the invention also include mesh panels for lower portions of the enclosure walls and rigid panels for insertion into pockets in the enclosure walls designed to prevent the formation of unwanted folds in the enclosure walls that could trap a child. The co-sleeper is height adjustable for variations in parental bed height.

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**Field of Search:**

**5/98.1,95,96,93.1,93.2,99.1,424,426,97,655**

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**Claims**

What is claimed is:

1. A co-sleeper convertibly adapted for use as a changing table comprising:

a rigid frame, said frame providing means for attaching a support platform at a first predetermined height;

said first predetermined height being less than a height of a top surface of a mattress of a parental bed;

an enclosure, said enclosure having an open top, a surrounding wall and a floor, said floor having an upper surface and a lower surface;

said enclosure being sized and shaped to fit removably over said rigid frame with the lower surface of the floor disposed upon the support platform;

a mattress pad, said mattress pad being sized and shaped to fit slidably within the enclosure; and



means for removably attaching the rigid frame to a side of the parental bed.

2. A co-sleeper convertibly adapted for use as a changing table as described in claim 1, wherein:

the rigid frame includes a front side element, a back side element, a first side element and a second side element;

the rigid frame being formed at a top by a rear upper horizontal rail and first and second upper side parallel horizontal rails and two upper front corner members and two upper rear corner members in cooperation therewith, and being formed adjacent a floor by front and rear lower parallel horizontal rails and first side and second side lower parallel horizontal rails and four lower corner leg members in cooperation therewith, and a pair of front vertical rails and a pair of rear vertical rails in further cooperation with the two upper front corner members and the two upper rear corner members and the four lower corner leg members, and a front upper horizontal rail in cooperation with said front vertical rails, said front upper horizontal rail having a first end and a second end;

said rear upper horizontal rail and first and second upper side parallel horizontal rails being disposed at a second predetermined height and said front upper horizontal rail being disposed at a third, lower predetermined height; and

said third predetermined height being greater than said first predetermined height and said second predetermined height being greater than said third predetermined height.

3. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, wherein the support platform comprises:

first and second intermediate side parallel horizontal rails and first and second horizontal support rails;

said first and second intermediate side parallel horizontal rails having first and second ends, a mid point and being removably connected at said first and second ends to the front and rear vertical rails of the first and second side elements, respectively; and

said first and second horizontal support rails having first and second ends, a mid point and being removably connected at said first and second ends to the first and second intermediate side parallel horizontal rails.

4. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, wherein the support platform comprises:

first, second, third and fourth support hangers, each of said support hangers having a first end, a second end, an inner side and an outer side and having a curved hooking portion disposed at said first end;

said hooking portion being sized and shaped to fit frictionally over the rigid frame and one of the first and second upper side horizontal rails;

each of said support hangers further including at least two circular orifices, said orifices extending from the inner side to the outer side of said hangers, at least two spring button housings, said housings disposed upon the outer sides of said support hangers adjacent said orifices, each of said spring button housings including a finger opening;

two support rods, each of said rods having a first end and a second end and being sized and shaped to extend between one of the first and second support hangers and one of the third and fourth support hangers when said support hangers are disposed upon one of the first and second upper side horizontal rails, each of said support rods having a spring button mounted at the first end and the second end, said spring button being sized and shaped to engage said spring button housing;

whereby, when the first and second ends of the support rods are introduced into the orifices of the support hangers, and the support hangers are disposed upon one of the first and second upper side horizontal rails, the spring buttons will removably engage the spring button housings of the hangers, thereby providing a support platform for the enclosure.

5. A co-sleeper convertibly adapted for use as a changing table as described in claim 4, wherein the enclosure further comprises at least one tie down strap, said strap being fixedly attached to a lower portion of the enclosure and serving to secure the enclosure to the rigid frame so as to prevent the enclosure from rocking on the support hangers.

6. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, wherein the support platform comprises:

a series of rigid floor panels, said floor panels being sized and shaped to fit within dimensions of the floor of the enclosure;

a series of panel pockets, said panel pockets having an upper surface and a lower surface and being fixedly attached at their upper surfaces to the lower surface of the enclosure and being sized and shaped to removably enclose said rigid floor panels;

a series of support bars, said bars being sized and shaped to fit within dimensions of the floor of the enclosure;

a series of bar pockets, said bar pockets having an upper surface and a lower surface and being fixedly attached at their upper surfaces to the lower surface of the panel packets and being sized and shaped to removably enclose said support bars; and

whereby, when said rigid floor panels are inserted into said panel pockets, said support bars are inserted into said bar pockets and said enclosure is installed on said rigid frame, the enclosure will include a support platform maintained at said first predetermined height.

7. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, further comprising:

means for pivotally mounting the front upper horizontal rail to the front vertical rails;

means for pivotally mounting the rear upper horizontal rail to the upper rear corner members;

a frame locking device positioned at center points of the front and rear upper horizontal rails pivotally mounted thereto and permitting said front and rear upper rail to pivot downwardly from an open top of the frame;

means for pivotally mounting the first and second upper side horizontal rails to the upper front and rear corner members;

frame locking devices positioned at center points of the first and second upper side horizontal rails being pivotally mounted thereto and permitting each of said rails to pivot downwardly from the open top of the frame;

means for pivotally mounting the first and second lower side horizontal rails to the lower front and rear corner members;

frame locking devices positioned at center points of the first and second side lower horizontal rails being pivotally mounted thereto and permitting each of said rails to pivot upwardly;

means for pivotally mounting the front and rear lower horizontal rails to the lower front and rear corner members, respectively; and

frame locking devices positioned at center points of the front and rear lower horizontal rails being pivotally mounted thereto and permitting each of said rails to pivot upwardly;

whereby, said frame may be quickly folded into a compact package for transport and storage by releasing the frame locking devices and depressing the upper horizontal rails downwardly while pulling upwardly on the lower horizontal rails, thereby causing the upper horizontal rails to bend downwardly and the lower horizontal rails to bend upwardly and the vertical rails to move inwardly.

8. A co-sleeper convertibly adapted for use as a changing table as described in claim 3, wherein the means for removably connecting the first and second intermediate side parallel horizontal rails to the front and rear vertical rails of the first and second side elements and the first and second horizontal support rails to the first and second intermediate side parallel horizontal rails comprises:

a plurality of coupling units, said coupling units being mounted to each of the first and second ends of the intermediate side parallel horizontal rails, the first and second horizontal support rails and front upper horizontal rail;

said coupling units including a T-shaped protrusion orthogonal to the rails and extending from a lower end of the coupling unit to an upper end of the coupling unit and terminating in a stop;

a resilient securing tab disposed on the coupling unit below the T-shaped protrusion, said securing tab including a locking projection spaced downwardly from a lower end of said T-shaped protrusion and extending outwardly from said securing tab, said locking projection having a flattened upper surface orthogonal to said securing tab;

a plurality of receiving units, said receiving units being mounted to each of the front and rear vertical rails and the intermediate side parallel horizontal rails;

said receiving units having a mating T-shaped slot extending from an upper end of the receiving unit to a lower end of the receiving unit, said slot terminating in a closed end, said closed end having a flattened lower surface;

said receiving units being sized shaped and disposed to removably secure said coupling units with said locking projection removably engaging the flattened lower surface of the closed end of the mating T-shaped slot when the T-shaped protrusion of the coupling unit is seated in the T-shaped slot of the receiving unit; and

whereby when said coupling units are removably attached to said receiving units, the first and second

ends of the intermediate side parallel horizontal rails and the front upper horizontal rail will be removably connected to the front and rear vertical rails and the first and second horizontal support rails will be removably connected to the intermediate side parallel horizontal rails.

9. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, wherein the enclosure further comprises:

a back wall, a front wall and first and second side walls;

said back wall, first and second side walls extending from the floor to at least a height of the rear upper horizontal rail and first and second upper side parallel horizontal rails;

said front wall extending from the floor to at least a height of the front upper horizontal rail;

each of said walls having a padded inner layer, said inner layer disposed between the front side element, back side element, first side element and second side element;

each of said walls having an outer layer, said outer layer extending outwardly from the rigid frame;

said padded inner layers and said outer layers being joined along upper edges and outer corners to form a pocket enclosing the front and rear upper horizontal rail and first and second upper side parallel horizontal rails and upper portions of the front and rear vertical rails; and

at least one tie down, said tie down being fixedly attached at a lower corner of the enclosure for removably securing the enclosure to the rigid frame.

10. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, wherein the enclosure further comprises:

a back wall, a front wall and first and second side walls;

said back wall, first and second side walls extending from the floor to at least the height of the rear upper horizontal rail and first and second upper side parallel horizontal rails;

said front wall extending from the floor to at least the height of the front upper horizontal rail;

each of said walls having a padded inner layer, said inner layer having an inner surface and an outer surface and being disposed between the front side element, back side element, first side element and second side element;

each of said walls having an outer layer, said outer layer having an inner surface and an outer surface and extending outwardly from the rigid frame;

said padded inner layers and said outer layers being joined along upper edges forming a series of exterior flaps extending downwardly from the front and rear upper horizontal rail and first and second upper side parallel horizontal rails; and

means for removably attaching the outer surfaces of the padded inner layers to the inner surfaces of the outer layers to secure the enclosure to the rigid frame.

11. A co-sleeper convertibly adapted for use as a changing table as described in claim 9, wherein the

enclosure further comprises:

a series of rigid panels, said panels being sized and shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure;

a series of pockets, said pockets being disposed upon an outer surface of the padded inner layers of said walls and being sized and shaped to removably enclose said rigid panels;

a series of openings in the outer layers of the walls for accessing the pockets; and

whereby when the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

12. A co-sleeper convertibly adapted for use as a changing table as described in claim 10, wherein the enclosure further comprises:

a series of rigid panels, said panels being sized and shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure;

a series of pockets, said pockets being disposed upon the outer surface of the padded inner layers of said walls and being sized and shaped to removably enclose said rigid panels; and

whereby when the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

13. A co-sleeper convertibly adapted for use as a changing table as described in claim 9, wherein the enclosure further comprises:

a series of mesh panels, said mesh panels being disposed along lower portions of the padded inner layers of the walls; and

whereby said mesh panels will provide additional breathing capability for an occupant of the enclosure that becomes trapped against one of the walls.

14. A co-sleeper convertibly adapted for use as a changing table as described in claim 10, wherein the enclosure further comprises:

a series of mesh panels, said mesh panels being disposed along lower portions of the padded inner layers of the walls; and

whereby said mesh panels will provide additional breathing capability for and occupant of the enclosure that becomes trapped against one of the walls.

15. A co-sleeper convertibly adapted for use as a changing table as described in claim 1 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a strap member having a first end and a second end;

a resistance plate member having at least two slots vertically aligned and centrally disposed at which the strap member is attached such that the first end and the second end are equidistant from the plate member;

a pair of securing strap attachment means, said securing strap attachment means being connected to either of the front and rear vertical rails of the rigid frame;

attachment cooperation means disposed at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means; and

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means;

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and held in place by the resistance plate member disposed vertically at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

16. A co-sleeper convertibly adapted for use as a changing table as described in claim 1, wherein the mattress pad has a top surface and a bottom surface and is covered with a washable fabric and padded on its top surface.

17. A co-sleeper convertibly adapted for use as a changing table as described in claim 16, wherein the mattress pad is segmented into at least four segments closely aligned, is capable of being folded, said mattress pad serving as an enclosure for the co-sleeper when folded for transport and storage.

18. A co-sleeper convertibly adapted for use as a changing table as described in claim 17, wherein the mattress pad further comprises at least one pair of reversibly separable attachment means and the enclosure comprises a series of openings sized shaped and disposed to permit the attachment means to secure the mattress pad to the support platform.

19. A convertible playpen configured as a co-sleeper as described in claim 18, wherein the mattress pad further comprises at least one pair of reversibly separable attachment means and the enclosure further comprises a series of openings sized shaped and disposed to permit the attachment means to secure the mattress pad to the rigid frame.

20. A co-sleeper convertibly adapted for use as a changing table as described in claim 7, wherein the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of said rails further comprise:

a connecting frame, said frame pivotally mounted to the inboard ends of each of the first and second portions of said horizontal rails;

said connecting frame including a pair of locking holes;

a pair of spring-loaded buttons mounted within said horizontal rails, said buttons being sized, shaped and disposed to engage the locking holes in the connecting frame when the first and second portions of said rails are collinear; and

means for pushing both buttons inwardly so as to clear the locking holes in the connecting frame simultaneously, thereby permitting the horizontal rails to be pivoted.

21. A co-sleeper convertibly adapted for use as a changing table as described in claim 20, further

comprising:

means for locking the spring-loaded buttons within the horizontal rails so as to clear the locking holes in the connecting frame after pushing the buttons inwardly when the first and second portions of said rails are collinear, thereby permitting easy folding of the rigid frame; and

means for unlocking the spring-loaded buttons upon folding of the rigid frame, thereby permitting the buttons to lock into the connecting frame when the rigid frame is unfolded.

22. A co-sleeper convertibly adapted for use as a changing table as described in claim 7, wherein the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of said rails further comprise:

an outer connecting housing, said connecting housing formed of rigid material and being pivotally mounted to the inboard ends of each of the first and second portions of said horizontal rails;

an inner spring housing, said spring housing being pivotally mounted to the inboard ends of each of the first and second portions of said horizontal rails such that said pivotal mountings are collinear with the mountings of the outer connecting housing; and

said inner spring housing being disposed within the outer connecting housing and being sized, shaped and disposed to fit frictionally about the inboard ends of each of the first and second portions of said rails and capable of expanding within said outer connecting housing to permit pivoting of said inboard ends when the rigid frame is folded, thereby providing a means of locking said inboard ends in collinear alignment when the rigid frame is unfolded.

23. A co-sleeper convertibly adapted for use as a changing table as described in claim 7, wherein the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of said rails further comprise:

a spring housing, said spring housing being pivotally mounted upon a pair of mounting pins to the inboard ends of each of the first and second portions of said horizontal rails;

said spring housing including first and second pairs of accurate alignment slots and first and second pairs of positioning detents;

first and second alignment pins, said pins being mounted parallel to said mounting pins and spaced outwardly from the inboard ends of the first and second portions of said horizontal rails;

said alignment pins being sized, shaped and disposed to fit slidably within said accurate alignment slots;

each of said pairs of positioning detents spaced apart by a distance slightly greater than a diameter of one of the horizontal rails; and

whereby, when the first and second portions of said horizontal rails are collinear, said rails will be within said spring housing and when said rails are pivoted with respect to one another to fold the rigid frame, the detents will be urged against the rails by the spring resistance of the housing, causing the housing to spread apart, such resistance serving to maintain the collinear alignment of the rails when the rigid frame is erected.

24. A co-sleeper convertibly adapted for use as a changing table as described in claim 2, further comprising height adjusting extensions cooperating with each of the four lower corner leg members.

25. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a strap member having a first end and a second end;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means; and

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means;

wherein, the strap member is properly positioned when connected to one of the strap attachment means and extended over a top surface of a mattress, down a back side of the mattress and underneath the mattress and connected to the other strap attachment means, the adjusting means being tightened to prevent movement of the co-sleeper with respect to the parental bed.

26. A co-sleeper convertibly adapted for use as a changing table as described in claim 25 wherein the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

27. A co-sleeper convertibly adapted for use as a changing table as described in claim 25 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

28. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a strap member having a first end and a second end;

a securing strap attachment means, said securing strap attachment means disposed at the first end of the strap member;

an attachment cooperation means disposed at the second end of the strap member for reversible connection to the securing strap attachment means; and

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the securing strap attachment means;

wherein, the strap member is properly positioned when extended over the top surface of a mattress, down the back side of the mattress and underneath the mattress, terminating behind the back side element with the securing strap attachment means connected to the attachment cooperation means, the adjusting means being tightened to prevent movement of the co-sleeper with respect to the parental bed.

29. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:



a Y-shaped strap member, said strap member having a leg end and first and second arm ends;

a resistance plate member, said resistance plate member disposed at the leg end of the Y-shaped strap member;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first and second arm ends of the Y-shaped strap member for reversible connection to the pair of securing strap attachment means;

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means; and

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and held in place by the resistance plate member disposed vertically at a side of the parental bed opposite placement of the co-sleeper and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

30. A co-sleeper convertibly adapted for use as a changing table as described in claim 29 wherein the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

31. A co-sleeper convertibly adapted for use as a changing table as described in claim 29 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

32. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a Y-shaped strap member, said strap member having a leg end and first and second arm ends;

a resistance plate member, said resistance plate member disposed at the leg end of the Y-shaped strap member;

a securing strap attachment means, said attachment means disposed at the first arm end of the Y-shaped strap member;

an attachment cooperation means disposed at the second arm end of the Y-shaped strap member for reversible connection to the securing strap attachment means;

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the securing strap attachment means; and

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and held in place by the resistance plate member disposed vertically at a side of the parental bed opposite placement of the co-sleeper, the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

33. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the

means for removably attaching the rigid frame to the side of the parental bed further comprises:

a strap member having a first end and a second end;

a hook member, said hook member being slidably mounted to the strap member such that the first end and the second end are equidistant from the hook member;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means; and

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means;

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and extending downwardly to a bed frame and held in place by the hook member attaching to said bed frame, at a side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

34. A co-sleeper convertibly adapted for use as a changing table as described in claim 33 wherein the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

35. A co-sleeper convertibly adapted for use as a changing table as described in claim 33 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

36. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a Y-shaped strap member, said strap member having a leg end and first and second arm ends;

a hook member, said hook member disposed at the leg end of the Y-shaped strap member;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first and second arm ends of the Y-shaped strap member for reversible connection to the pair of securing strap attachment means;

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means; and

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and extending downwardly to a bed frame and held in place by the hook member attaching to said bed frame at the side of the parental bed opposite placement of the co-sleeper and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

37. A co-sleeper convertibly adapted for use as a changing table as described in claim 36 wherein the securing strap attachment means are connected to either of the front upper horizontal rail and front lower

horizontal rail.

38. A co-sleeper convertibly adapted for use as a changing table as described in claim 36 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

39. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

a Y-shaped strap member, said strap member having a leg end and first and second arm ends;

a hook member, said hook member disposed at the leg end of the Y-shaped strap member;

a securing strap attachment means, said attachment means disposed at the first arm end of the Y-shaped strap member;

an attachment cooperation means disposed at the second arm end of the Y-shaped strap member for reversible connection to the securing strap attachment means;

adjusting means for adjusting a length of the strap member and tightening same after connecting the attachment cooperation means to the securing strap attachment means; and

wherein, the strap member is properly positioned when disposed under a mattress and above a surface on which said mattress rests and extending downwardly to a bed frame and held in place by the hook member attaching to said bed frame at the side of the parental bed opposite placement of the co-sleeper, the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

40. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

first and second strap members, each of said strap members having a first end and a second end;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first ends of each of the first and second strap members for reversible connection to the pair of securing strap attachment means;

first and second resistance plate members, each of said resistance plate members attached to the second end of one of the first and second strap members;

adjusting means for adjusting a length of the first and second strap members and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means;

wherein, the first and second strap members are properly positioned when disposed under a mattress and above a surface on which said mattress rests and held in place by the first and second resistance plate members disposed vertically at a side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

41. A co-sleeper convertibly adapted for use as a changing table as described in claim 40 wherein the

securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

42. A co-sleeper convertibly adapted for use as a changing table as described in claim 40 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

43. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

first and second strap members, each of said strap members having a first end and a second end;

a securing strap attachment means, said securing strap attachment means disposed at the first end of the first strap member;

an attachment cooperation means disposed at the first end of the second strap member for reversible connection to the securing strap attachment means;

first and second resistance plate members, each of said resistance plate members attached to the second end of one of the first and second strap members;

adjusting means for adjusting a length of either of the first and second strap members and tightening same after connecting the attachment cooperation means to the securing strap attachment means;

wherein, the first and second strap members are properly positioned when disposed under a mattress and above a surface on which said mattress rests and held in place by the first and second resistance plate members disposed vertically at a side of the parental bed opposite placement of the co-sleeper, the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

44. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

first and second strap members, each of said strap members having a first end and a second end;

a pair of securing strap attachment means, said securing strap attachment means being connected to the rigid frame of the co-sleeper;

attachment cooperation means disposed at the first ends of each of the first and second strap members for reversible connection to the pair of securing strap attachment means;

first and second hook members, each of said hook members attached to the second end of one of the first and second strap members;

adjusting means for adjusting a length of the first and second strap members and tightening same after connecting the attachment cooperation means to the pair of securing strap attachment means;

wherein, the first and second strap members are properly positioned when disposed under a mattress and above a surface on which said mattress rests and extending downwardly to a bed frame and held in place by the first and second hook members attaching to said bed frame at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the

parental bed.

45. A co-sleeper convertibly adapted for use as a changing table as described in claim 43 wherein the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

46. A co-sleeper convertibly adapted for use as a changing table as described in claim 43 wherein the securing strap attachment means are connected to either of the front and rear vertical rails.

47. A co-sleeper convertibly adapted for use as a changing table as described in claim 2 wherein the means for removably attaching the rigid frame to the side of the parental bed further comprises:

first and second strap members, each of said strap members having a first end and a second end;

a securing strap attachment means, said securing strap attachment means disposed at the first end of the first strap member;

an attachment cooperation means disposed at the first end of the second strap member for reversible connection to the securing strap attachment means;

first and second hook members, each of said hook members attached to the second end of one of the first and second strap members;

adjusting means for adjusting a length of either of the first and second strap members and tightening same after connecting the attachment cooperation means to the securing strap attachment means;

wherein, the first and second strap members are properly positioned when disposed under a mattress and above a surface on which said mattress rests and extending downwardly to a bed frame and held in place by the first and second hook members attaching to said bed frame at a side of the parental bed opposite placement of the co-sleeper, the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

48. A co-sleeper convertibly adapted for use as a changing table as described in claim 15 wherein the adjusting means is disposed at a point on the strap member adjacent the resistance plate member.

49. A co-sleeper convertibly adapted for use as a changing table as described in claims 29, 30, 31 or 32 wherein the adjusting means is disposed at the leg end of the Y-shaped strap member adjacent the resistance plate member.

50. A co-sleeper convertibly adapted for use as a changing table as described in claims 33, 34 or 35 wherein the adjusting means is disposed at a point on the strap member adjacent the hook member.

51. A co-sleeper convertibly adapted for use as a changing table as described in claims 36, 37, 38 or 39 wherein the adjusting means is disposed at the leg end of the Y-shaped strap member adjacent the hook member.

52. A co-sleeper convertibly adapted for use as a changing table as described in claims 40, 41, 42 or 43 wherein the adjusting means are disposed at points on the first and second strap member adjacent the first and second resistance plate members.

53. A co-sleeper convertibly adapted for use as a changing table as described in claims 44, 45, 46 or 47 wherein the adjusting means are disposed at points on the first and second strap member adjacent the first and second hook members.

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### *Description*

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#### FIELD OF INVENTION

The instant invention relates to the field of convertible units for use with babies and very young children; in particular to units which may be easily converted to a changing table or child's bed-side sleeping enclosure, hereinafter referred to for convenience as a "co-sleeper", that attaches securely to the parents' bed.

#### BACKGROUND OF THE INVENTION

Furniture and fixtures for use by babies and small children often presents a problem for parents with limited living space. For this reason it is desirable that such furniture serve more than one purpose. A bedside co-sleeper is very useful for an infant or very young child as it prevents a parent from having to get out of bed to deal with a child requiring minor attention or comforting. If the co-sleeper can then be put to other uses, the parents will save both space and the cost of other furniture. Various examples of such multi-purpose children's furniture have been patented and sold.

In U.S. Pat. No. 5,349,709, issued to Cheng teaches a folding combination playpen and baby bed having an elevated floorboard. U.S. Pat. No. 5,339, 470, issued to Shamie discloses a combination foldable playpen and dressing/changing table. U.S. Pat. No. 5,553,336 issued to Mariol adds an upper level to a playpen to provide a bassinet. The short legs of the upper level are inserted into openings in the top of the vertical supports of the playpen. U.S. Pat. No. 2,632,186, issued to Berk et al. discloses a portable combination crib and playpen. U.S. Pat. No. 2,691,176 issued to Saldana teaches a unit designed for home and travel that may be used as a support for a playpen, bassinet or baby chair.

Beside cribs that attached to the parents' bed were known at the turn of the century (U.S. Pat. Nos. 5,548,005; 620,069; 1,138,451; 1,283,169; 1,267,244) but fell out of favor for many years. Recently there has been a resurgence in the practice of having babies adjacent the parents' bed. Such bed-side devices are taught in U.S. Pat. No. 5,172,435 to Griffin et al.; U.S. Pat. No. 5,148,561 to Tharalson et al; and U.S. Pat. No. 5,293,655 to Van Winkle et al.

It is an objective of the present invention to provide a bedside co-sleeper that can be adapted for use as a changing table. It is a further objective of the invention to provide a stand-alone unit that is inexpensive, compact and portable. It is still a further objective of the present invention that the unit be simple to erect and collapsible for transport and storage. Finally, it is an objective of the invention that the co-sleeper design consider and address all possible safety considerations related to its use. Other features and advantages of the invention will be seen from the following description and drawings. The present invention addresses many of the deficiencies of prior art convertible sleeping unit inventions and satisfies all of the objectives described above.

#### SUMMARY OF THE INVENTION

A combination co-sleeper and changing table providing the desired features may be constructed from the following components. A rigid frame is provided. The frame provides means for attaching a support

platform at a first predetermined height. The first predetermined height is less than a height of a top surface of a mattress of a parental bed. An enclosure is provided. The enclosure has an open top, a surrounding wall and a floor, the floor has an upper surface and a lower surface. The enclosure is sized and shaped to fit removably over the rigid frame with the lower surface of the floor located upon the support platform. A mattress pad is provided. The mattress pad is sized and shaped to fit slidably within the enclosure. Means are provided for removably attaching the rigid frame to a side of the parental bed.

In a variant of the invention, the rigid frame includes a front side element, a back side element, a first side element and a second side element. The rigid frame is formed at a top by a rear upper horizontal rail and first and second upper side parallel horizontal rails and two upper front corner members and two upper rear corner members in cooperation with the rails. The rigid frame is formed adjacent a floor by front and rear lower parallel horizontal rails and first side and second side lower parallel horizontal rails and four lower corner leg members in cooperation with the rails. A pair of front vertical rails and a pair of rear vertical rails are in further cooperation with the two upper front corner members and the two upper rear corner members and the four lower corner leg members.

A front upper horizontal rail is in cooperation with the front vertical rails. The front upper horizontal rail has a first end and a second end. The rear upper horizontal rail and first and second upper side parallel horizontal rails are located at a second predetermined height and the front upper horizontal rail is located at a third, lower predetermined height. The third predetermined height is greater than the first predetermined height and the second predetermined height is greater than the third predetermined height.

In a further variant, the support platform includes first and second intermediate side parallel horizontal rails and first and second horizontal support rails. The first and second intermediate side parallel horizontal rails have first and second ends, a mid point and are removably connected at the first and second ends to the front and rear vertical rails of the first and second side elements, respectively. The first and second horizontal support rails have first and second ends, a mid point and are removably connected at the first and second ends to the first and second intermediate side parallel horizontal rails.

In still a further variant, the support platform includes first, second, third and fourth support hangers. Each of the support hangers has a first end, a second end, an inner side and an outer side. Each of the hangers has a curved hooking portion located at the first end. The hooking portion is sized and shaped to fit frictionally over the rigid frame and one of the first and second upper side horizontal rails. Each of the support hangers further includes at least two circular orifices. The orifices extend from the inner side to the outer side of the hangers. The hangers also include at least two spring button housings. The housings are located on the outer sides of the support hangers adjacent the orifices. Each of the spring button housings includes a finger opening.

Two support rods are provided. Each of the rods has a first end and a second end and is sized and shaped to extend between one of the first and second support hangers and one of the third and fourth support hangers when the support hangers are located on one of the first and second upper side horizontal rails. Each of the support rods has a spring button mounted at the first end and the second end. The spring button is sized and shaped to engage the spring button housing. When the first and second ends of the support rods are introduced into the orifices of the support hangers, and the support hangers are located on one of the first and second upper side horizontal rails, the spring buttons will removably engage the spring button housings of the hangers, thereby providing a support platform for the enclosure.

In yet another variant of the invention, the enclosure further includes at least one tie down strap. The strap is fixedly attached to a lower portion of the enclosure and serving to secure the enclosure to the rigid frame so as to prevent the enclosure from rocking on the support hangers.

In still another variant, the support platform includes a series of rigid floor panels. The floor panels are sized and shaped to fit within dimensions of the floor of the enclosure. A series of panel pockets is provided. The panel pockets have an upper surface and a lower surface and are fixedly attached at their upper surfaces to the lower surface of the enclosure. The panel pockets are sized and shaped to removably enclose the rigid floor panels.

A series of support bars are provided. The bars are sized and shaped to fit within dimensions of the floor of the enclosure. A series of bar pockets are provided. The bar pockets have an upper surface and a lower surface and are fixedly attached at their upper surfaces to the lower surface of the panel pockets. The bar pockets are sized and shaped to removably enclose the support bars. When the rigid floor panels are inserted into the panel pockets, the support bars are inserted into the bar pockets and the enclosure is installed on the rigid frame, the enclosure will include a support platform maintained at the first predetermined height.

In still a further variant of the invention, means are provided for pivotally mounting the front upper horizontal rail to the front vertical rails. Means are provided for pivotally mounting the rear upper horizontal rail to the upper rear corner members. Frame locking devices are pivotally mounted at center points of the front and rear upper horizontal rails. The frame locking devices permit the front and rear upper horizontal rails to pivot downwardly from an open top of the frame.

Means are provided for pivotally mounting the first and second upper side horizontal rails to the upper front and rear corner members. Frame locking devices are pivotally mounted at center points of the first and second upper side horizontal rails. The frame locking devices permit each of the rails to pivot downwardly from the open top of the frame.

Means are provided for pivotally mounting the first and second lower side horizontal rails to the lower front and rear corner leg members. Frame locking devices are pivotally mounted at center points of the first and second side lower horizontal rails. The frame locking devices permit each of the rails to pivot upwardly.

Means are provided for pivotally mounting the front and rear lower horizontal rails to the lower front and rear corner members, respectively. Frame locking devices are pivotally mounted at center points of the front and rear lower horizontal rails. The frame locking devices permit each of the rails to pivot upwardly. The frame may be quickly folded into a compact package for transport and storage by releasing the frame locking devices and depressing the upper horizontal rails downwardly while pulling upwardly on the lower horizontal rails, thereby causing the upper horizontal rails to bend downwardly and the lower horizontal rails to bend upwardly and the vertical rails to move inwardly.

In another variant, the means for removably connecting the first and second intermediate side parallel horizontal rails to the front and rear vertical rails of the first and second side elements and the first and second horizontal support rails to the first and second intermediate side parallel horizontal rails includes a plurality of coupling units. The coupling units are mounted to each of the first and second ends of the intermediate side parallel horizontal rails, the first and second horizontal support rails and front upper horizontal rail.

The coupling units include a T-shaped protrusion orthogonal to the rails and extending from a lower end of the coupling unit to an upper end of the coupling unit and terminating in a stop. A resilient securing tab is located on the coupling unit below the T-shaped protrusion. The securing tab includes a locking projection spaced downwardly from a lower end of the T-shaped protrusion and extending outwardly from the securing tab. The locking projection has a flattened upper surface orthogonal to the securing



tab.

A series of receiving units are provided. The receiving units are mounted to each of the front and rear vertical rails and the intermediate side parallel horizontal rails. The receiving units have a mating T-shaped slot extending from an upper end of the receiving unit to a lower end of the receiving unit. The slot terminates in a closed end. The closed end has a flattened lower surface. The receiving units are sized shaped and located to removably secure the coupling units with the locking projection removably engaging the flattened lower surface of the closed end of the mating T-shaped slot when the T-shaped protrusion of the coupling unit is seated in the T-shaped slot of the receiving unit.

When the coupling units are removably attached to the receiving units, the first and second ends of the intermediate side parallel horizontal rails and the front upper horizontal rail will be removably attached to the front and rear vertical rails and the first and second horizontal support rails will be removably attached to the intermediate side parallel horizontal rails.

In yet another variant of the invention, the enclosure further includes a back wall, a front wall and first and second side walls. The back wall, first and second side walls extend from the floor to at least a height of the rear upper horizontal rail and first and second upper side parallel horizontal rails. The front wall extends from the floor to at least a height of the front upper horizontal rail.

Each of the walls has a padded inner layer. The inner layer is located between the front side element, back side element, first side element and second side element. Each of the walls has an outer layer. The outer layer extends outwardly from the rigid frame. The padded inner layers and the outer layers are joined along upper edges and outer corners to form a pocket enclosing the front and rear upper horizontal rail and first and second upper side parallel horizontal rails and upper portions of the front and rear vertical rails. At least one tie down is provided. The tie down is fixedly attached at a lower corner of the enclosure for removably securing the enclosure to the rigid frame.

In yet a further variant, the enclosure further includes a back wall, a front wall and first and second side walls. The back wall, first and second side walls extend from the floor to at least the height of the rear upper horizontal rail and first and second upper side parallel horizontal rails. The front wall extends from the floor to at least the height of the front upper horizontal rail. Each of the walls has a padded inner layer. The inner layer has an inner surface and an outer surface and is located between the front side element, back side element, first side element and second side element.

Each of the walls has an outer layer. The outer layer has an inner surface and an outer surface and extending outwardly from the rigid frame. The padded inner layers and the outer layers are joined along upper edges forming a series of exterior flaps extending downwardly from the front and rear upper horizontal rails and first and second upper side parallel horizontal rails. Means are provided for removably attaching the outer surfaces of the padded inner layers to the inner surfaces of the outer layers to secure the enclosure to the rigid frame.

In still a further variant of the invention, the enclosure further includes a series of rigid panels. The panels are sized and shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure. A series of pockets is provided. The pockets are located on the outer surface of the padded inner layers of the walls and are sized and shaped to removably enclose the rigid panels. A series of openings in the outer layers of the walls is provided for accessing the pockets. When the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

In yet a further variant, the enclosure further includes a series of rigid panels. The panels are sized and

shaped to provide structural support for the back wall, front wall and first and second side walls of the enclosure. A series of pockets is provided. The pockets are located on the outer surface of the padded inner layers of the walls and are sized and shaped to removably enclose the rigid panels. When the rigid panels are installed in the pockets, an occupant of the enclosure will not be able to push the walls outwardly beyond the rigid frame to produce an entrapping fold.

In still another variant of the invention, the enclosure further includes a series of mesh panels. The mesh panels are located along lower portions of the padded inner layers of the walls. The mesh panels will provide additional breathing capability for an occupant of the enclosure that becomes trapped against one of the walls.

In yet another variant, the enclosure further includes a series of mesh panels. The mesh panels are located along lower portions of the padded inner layers of the walls. The mesh panels will provide additional breathing capability for an occupant of the enclosure that becomes trapped against one of the walls.

In yet a further variant, the means for removably attaching the rigid frame to a side of the parental bed includes a strap member having a first end and a second end. A resistance plate member is provided. The plate member has at least two slots vertically aligned and centrally located. The strap member is attached at the slots such that the first end and the second end are equidistant from the plate member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to either of the front and rear vertical rails of the rigid frame.

Attachment cooperation means are located at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means. Adjusting means are provided for adjusting a length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under a mattress and above a surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In still a further variant of the invention, the mattress pad has a top surface and a bottom surface and is covered with a washable fabric and padded on its top surface.

In another variant, the mattress pad is segmented into at least two segments closely aligned and is capable of being folded. The mattress pad serves as an enclosure for the co-sleeper when folded for transport and storage.

In still another variant, the mattress pad further includes at least one pair of reversibly separable attachment means and the enclosure comprises a series of openings sized shaped and located to permit the attachment means to secure the mattress pad to the support platform.

In a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion has an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include a connecting frame. The connecting frame is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails. The connecting frame includes a pair of locking holes. A pair of spring-loaded buttons are mounted within the horizontal rails. The buttons are sized, shaped and located to engage the locking holes in the connecting frame when the first and second portions of the rails are collinear. Means are provided for pushing both buttons inwardly so as to clear the locking holes in the connecting frame simultaneously, thereby permitting the horizontal rails to be pivoted.

In still a further variant of the invention, means are provided for locking the spring-loaded buttons within the horizontal rails so as to clear the locking holes in the connecting frame after pushing the buttons inwardly when the first and second portions of the rails are collinear, thereby permitting easy folding of the rigid frame. Means are provided for unlocking the spring-loaded buttons upon folding of the rigid frame, thereby permitting the buttons to lock into the connecting frame when the rigid frame is unfolded.

In yet a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include an outer connecting housing, the connecting housing is formed of rigid material and is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails. An inner spring housing is provided. The spring housing is pivotally mounted to the inboard ends of each of the first and second portions of the horizontal rails such that the pivotal mountings are collinear with the mountings of the outer connecting housing.

The inner spring housing is located within the outer connecting housing and is sized, shaped and located to fit frictionally about the inboard ends of each of the first and second portions of the rails and is capable of expanding within the outer connecting housing to permit pivoting of the inboard ends when the rigid frame is folded, thereby providing a means of locking the inboard ends in collinear alignment when the rigid frame is unfolded.

In still a further variant, the rigid frame is formed of hollow tubing, the horizontal rails each have a first portion and a second portion, each portion having an inboard end and an outboard end, and the frame locking devices positioned at center points of the rails further include a spring housing. The spring housing is pivotally mounted on a pair of mounting pins to the inboard ends of each of the first and second portions of the horizontal rails. The spring housing includes first and second pairs of arcuate alignment slots and first and second pairs of positioning detents.

First and second alignment pins are provided. The pins are mounted parallel to the mounting pins and spaced outwardly from the inboard ends of the first and second portions of the horizontal rails. The alignment pins are sized, shaped and located to fit slidably within the arcuate alignment slots. Each of the pairs of positioning detents is spaced apart by a distance slightly greater than a diameter of one of the horizontal rails. When the first and second portions of the horizontal rails are collinear, the rails will be within the spring housing and when the rails are pivoted with respect to one another to fold the rigid frame, the detents will be urged against the rails by the spring resistance of the housing, causing the housing to spread apart. This resistance serves to maintain the collinear alignment of the rails when the rigid frame is erected.

In a yet another variant of the invention, height adjusting extensions cooperate with each of the four lower corner leg members.

In another variant, the means for removably attaching the rigid frame to a side of the parental bed includes a strap member that has a first end and a second end. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are provided. The means are located at the first end and the second end of the strap member for reversible connection to the pair of securing strap attachment means. Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when connected to one of the strap attachment means and extended over a top

surface of the mattress, down a back side of the mattress and underneath the mattress and connected to the other strap attachment means and the adjusting means is tightened to prevent movement of the co-sleeper with respect to the parental bed.

In still another variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail.

In yet another variant, the securing strap attachment means are connected to either of the front and rear vertical rails.

In yet a further variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes a strap member having a first end and a second end. A securing strap attachment means is provided. The securing strap attachment means is located at the first end of the strap member. An attachment cooperation means is located at the second end of the strap member for reversible connection to the securing strap attachment means. Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the securing strap attachment means.

The strap member is properly positioned when extended over the top surface of the mattress, down the back side of the mattress and underneath the mattress, terminating behind the back side element with the securing strap attachment means connected to the attachment cooperation means and the adjusting means is tightened to prevent movement of the co-sleeper with respect to the parental bed.

In still a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A resistance plate member is provided. The resistance plate member is located at the leg end of the Y-shaped strap member. A pair of securing strap attachment means is provided. The securing strap attachment means are connected to the rigid frame of the co-sleeper. Attachment cooperation means are located at the first and second arm ends of the Y-shaped strap member for reversible connection to the pair of securing strap attachment means.

Adjusting means are provided for adjusting the length of the strap member and tightening it after connecting the attachment cooperation means to the pair of securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper and the adjusting means is tightened so the co-sleeper is held fast to the parental bed.

In yet a further variant, the securing strap attachment means are connected to either of the front upper horizontal rail and front lower horizontal rail. In still another variant of the invention, the securing strap attachment means are connected to either of the front and rear vertical rails.

In still a further variant, the means for removably attaching the rigid frame to the side of the parental bed includes a Y-shaped strap member. The strap member has a leg end and first and second arm ends. A resistance plate member is provided. The resistance plate member is located at the leg end of the Y-shaped strap member. A securing strap attachment means is provided. The attachment means is located at the first arm end of the Y-shaped strap member. An attachment cooperation means is located at the second arm end of the Y-shaped strap member for reversible connection to the securing strap attachment means.

Adjusting means are provided for adjusting the length of the strap member and tightening it after

connecting the attachment cooperation means to the securing strap attachment means. The strap member is properly positioned when located under the mattress and above the surface on which the mattress rests and held in place by the resistance plate member located vertically at the side of the parental bed opposite placement of the co-sleeper with the securing strap attachment means connected to the attachment cooperation means behind the back side element of the rigid frame and the adjusting means tightened so the co-sleeper is held fast to the parental bed.

In yet another variant of the invention, the means for removably attaching the rigid frame to the side of the parental bed includes a strap member having a

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**Patent Assignee :**

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005655000

**Document Type :**

Basic

**Citations :**

US-620069; US1138451; US1267244; US1283169; US2632186; US2691176;  
US3427666; US5148561; US5172435; US5293655; US5339470; US5349709;  
US5430899; US5548005; US5553336; US5581827; US5822817; US5845349;  
US5963998; US6112347; US6148456

**Publication Stage :**

(A1) Utility Patent Application published on or after January 2, 2001

**Publication Stage 2 :**

(B2) U.S. Patent (with pre-grant pub.) after Jan. 2, 2001

**Abstract :**

A co-sleeper convertibly adapted for use as a changing table is described. The invention includes a collapsible rigid frame designed to support an enclosure at a predetermined height. The enclosure has padded walls and is sized and shaped to fit over the rigid frame. The back, first and second side walls of the enclosure are of a first height above a floor of the enclosure while the front wall is of a lower height. The floor of the enclosure is designed to be slightly lower than the top surface of a parental bed. A mattress pad is sized and shaped to fit within the enclosure and is segmented to use as a containing cover for the co-sleeper when the frame is collapsed. A strapping member is provided to hold the co-sleeper to the parental bed. A number of variations of this strapping member are provided. Several styles of support members for the enclosure are provided. These include support bars that attach to the rigid frame, a series of hangers that support horizontal bars while hanging from top rails of the frame, and rigid panels and support rods fitted into pockets on the underside of the enclosure. Variants on the invention also include mesh panels for lower portions of the enclosure walls and rigid panels for insertion into pockets in the enclosure walls designed to prevent the formation of unwanted folds in the enclosure walls that could trap a child. The

co-sleeper is height adjustable for variations in parental bed height.  
**Update Code :**  
2002-44

1 / 1 LGST - @EPO

**Patent Number :**

US2002152550 A1 20021024 [US20020152550]  
US6578211 B2 20030617 [US6578211]

**Application Number :**

US83804101 20010420 [2001US-0838041]

**Action Taken :**

20010420 US/AS-A

ASSIGNMENT

OWNER: ARMS REACH CONCEPTS, INC. 27162 SEA VISTA DRIVE MA

ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:THARALSON, DOUGLAS;THARALSON,  
DIANA;MARTIN, BRUCE;REEL/FRAME:011754/0932;SIGNING DATES FROM 20010409  
TO 20010410

20040608 US/RF-A

REISSUE APPLICATION FILED

EFFECTIVE DATE: 20040310

**Update Code :**

2004-34

1 / 1 CRXX - @CLAIMS/RRX

**Patent Number :**

6,578,211 A 20030617 [US6578211]

**Patent Assignee :**

Arms Res Concepts Inc

**Actions :**

20040310 REISSUE REQUESTED

ISSUE DATE OF O.G.: 20040608

REISSUE REQUEST NUMBER: 10/797933

EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 3673

Reissue Patent Number:

1 / 4 LITA - @Thomson Derwent

**Accession Number :**

P2004-10-06

**File Segment :**

PATENT (P)

**Patent Number :**

US6578211 20030617 (Utility)

**Plaintiffs :**

Arms' Reach Concepts Incorporated

**Defendants :**

Simplicity Incorporated

**Court :**

CA, Central Dist.

**Docket Number :**

LACV03-6847 DDP

**Filing Date :**

2003-09-16

**Action :**

A complaint was filed.

2 / 4 LITA - @Thomson Derwent

**Accession Number :**

P2004-01-01

**Cross Reference :**

P2003-42-07

**File Segment :**

PATENT (P)

**Patent Number :**

US6578211 20030117 (Utility)

**Plaintiffs :**

Arm's Reach Concepts Incorporated

**Defendants :**

Simplicity Incorporated

**Court :**

CA, Central Dist.

**Docket Number :**

LACV03-6647

**Filing Date :**

2003-09-16

**Action Date :**

2003-12-11

**Action :**

Stipulation & Order withdrawing motion to dismiss. This entire action is hereby by dismissed without prejudice.

3 / 4 LITA - @Thomson Derwent

**Accession Number :**

P2003-42-07

**File Segment :**

PATENT (P)

**Patent Number :**

US6578211 20030117 (Utility)

**Plaintiffs :**

Arm's Reach Concepts Incorporated

**Defendants :**

Simplicity Incorporated

**Court :**

CA, Central Dist.

**Docket Number :**

LACV03-6647

**Filing Date :**

2003-09-16

**Action :**

A complaint was filed.

4 / 4 LITA - @Thomson Derwent

**Accession Number :**

P2003-32-41

**File Segment :**

PATENT (P)

**Patent Number :**

US5845349 19981208 (Utility)

**Plaintiffs :**

Simplicity Incorporated

**Defendants :**

Arms Reach Concepts Incorporated



**Court :**

PA, Eastern Dist.

**Docket Number :**

03-4415

**Filing Date :**

2003-07-29

**Action :**

A complaint was filed.

**Other Patents Nbrs :**

US6578211

1 / 1 INPADOC - @INPADOC

**Patent Number :**

US 6578211 BB 20030617 [US6578211]

**Title :**

COMBINATION CO-SLEEPER AND CHANGING TABLE

**Inventor(s) :**

THARALSON DOUGLAS [US]; THARALSON DIANA [US]; MARTIN BRUCE [US]

**Patent Assignee (Words) :**

ARMS RES CONCEPTS INC [US]

**Application Details :**

US 838041/01-A 20010420 [2001US-0838041]

**Priority Details :**

US 838041/01-A 20010420 [2001US-0838041]

**Intl. Patent Class. :**

A47D-007/04

1 / 1 LGST - @EPO

**Patent Number :**

US2002152550 A1 20021024 [US20020152550]

US6578211 B2 20030617 [US6578211]

**Application Number :**

US83804101 20010420 [2001US-0838041]

**Action Taken :**

20010420 US/AS-A

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TO 20010410

20040608 US/RF-A

REISSUE APPLICATION FILED

EFFECTIVE DATE: 20040310

**Update Code :**

2004-34